

BioForest-03.US

Schedule A

SN 10/783,003

to the Response of June 15, 2006

Please amend the title to read as follows.

"APPARATUS FOR DISPENSING FLUID INTO A TREE"

Please amend the claims to read as follows.

Claims 1-20 (Canceled)

21. (Currently amended) A dispensing apparatus for dispensing a fluid into ~~an~~
~~object such as~~ a tree, the dispensing apparatus comprising:

- a) a canister for containing an injection fluid, the canister having an interior cavity with inside cylindrical walls and an output port communicating with the interior cavity;
- b) a partition within the interior cavity dividing such interior cavity into a first subchamber communicating with the output port and a second subchamber on the side of the partition opposite such output port, the partition being a movable partition which is positioned within the interior cavity for sliding displacement therein and having a sealing fit against the inside walls of the interior cavity;
- c) a valve/closure disposed at the output port for permitting the release of fluid contained within the first subchamber;
- d) spring means for applying a force on the movable partition disposed within the second subchamber, the spring means being seated on the canister and being oriented to apply a force on the moveable partition, biasing the partition for displacement towards the valve/closure; **[[and]]**

in combination with:

e) a nozzle having a bore extending there through, the nozzle being shaped at a first end for communication with the output port and being shaped at its other, second end in the shape for connection with a hole formed in ~~the object~~ a tree into which fluid is to be injected,

wherein, upon connection of the nozzle at the output port, a flow path is available from the first subchamber through the valve/closure to permit fluid, expressed from the first subchamber by displacement of the partition in response to the force applied by the spring means, to pass through the bore of the nozzle, thereby dispensing the fluid from the dispensing apparatus, and wherein

- i) the valve/closure comprises a self-sealing solid penetratable plug of penetratable elastomeric material;
- ii) the nozzle comprises a needle having a needle bore and needle tip, the needle being positioned at a recessed location within the first end of the nozzle for insertion through the plug for permitting a flow of fluid through the needle, and
- iii) the needle ~~has a needle tip for penetrating the penetratable plug and the~~ needle tip is positioned within a recess in the nozzle whereby the needle tip does not extend beyond the first end of the nozzle [.] , and
- iv) the first end of the nozzle has a hammerable outermost end, extending beyond the needle tip, for use in inserting of the nozzle into a tree.

22 (Canceled) ~~A dispensing apparatus as defined in Claim 21 wherein~~

~~a) the valve/closure comprises a self-sealing penetratable plug; and~~

b) ~~the nozzle comprises a needle having a needle bore, the needle being positioned for insertion through the plug for permitting a flow of fluid through the needle.~~

23. (Previously Presented) A dispensing apparatus as defined in Claim 22 wherein the spring means comprises a pressurized gas that is hermetically contained within the second subchamber.

24. (Previously Presented) A dispensing apparatus as defined in Claim 22 wherein the spring means comprises a mechanical spring.

25. (Previously Presented) A dispensing apparatus as defined in Claim 24 wherein the spring means comprises a plurality of nested helical springs.

26. (Previously Presented) A dispensing apparatus as defined in Claim 25 wherein the maximum extension of said springs within the second subchamber is less than 70% of their maximum potential expansion.

27. (Previously Presented) A dispensing apparatus as defined in Claim 26 wherein the maximum extension of said springs within the second subchamber is less than 30% of their maximum potential expansion.

28. (Previously Presented) A dispensing apparatus as in Claim 25 wherein the nested springs each have an individual diameter and the diameter of each nested spring is progressively smaller proceeding inwardly within the second subchamber.

29. (Previously Presented) A dispensing apparatus as in Claim 28 wherein said nested springs are seated within the canister to permit their expansion without interference arising between adjacent springs.

30. (Previously Presented) A dispensing apparatus as in Claim 21 wherein the second end of the nozzle is tapered for insertion into a hole formed in the outside surface of a tree to provide a jam-fit therein.

31. (Previously Presented) A dispensing apparatus as in Claim 22 wherein the canister has a tapered seat for receiving the self-sealing penetratable plug and such self-sealing penetratable plug has a tapered exterior that is complementary to the shape of said tapered seat.

32. (Canceled) ~~A dispensing apparatus as in claim 22 wherein the needle has a needle tip for penetrating the penetratable plug and said the needle tip is positioned within a recess in the nozzle whereby the needle tip does not extend beyond the end of the nozzle.~~

33. (Currently amended) A dispensing apparatus as in Claim 21 wherein the canister has a top end surrounding the output port and an opposite, bottom, end, **[[and]]** said top and bottom ends being of a complementary shape permitting consecutive canisters to be fitted into each other for stacking.

34. (Previously Presented) A dispensing apparatus as in Claim 22 wherein said

valve-closure is composed of styrene butadiene.

35. (Withdrawn) A dispensing apparatus as in Claim 21 in combination with a refill nozzle having a bore extending there through, the nozzle being shaped at a first end for communication with the output port and being shaped at its other, second end for connection to a source of pressurized fluid to be inserted into said canister,

wherein, upon connection of the refill nozzle to the canister at the output port, a flow path is available through said refill nozzle to permit fluid, supplied by said source of pressurized fluid, to pass through the bore of the nozzle and through the valve/closure into the first subchamber of the canister.

36. (Withdrawn) A dispensing apparatus as in Claim 35 wherein said refill nozzle comprises a spring-biased valve means which is actuated to open upon connection of the refill nozzle to the canister, said spring-biased valve means being biased for closure prior to connection of the refill nozzle to the canister.

37. (Withdrawn) A dispensing apparatus as in Claim 36 comprising holding means for holding the refilling nozzle and canister in a mated state.

38. (Canceled) ~~A dispensing apparatus as in Claim 21 wherein the object into which fluid is to be dispensed is a tree having bark and wherein the second end of the nozzle is tapered for insertion into a hole formed in the bark of the tree to provide a jam fit therein.~~

39. (Previously Presented) A dispensing apparatus as in Claim 22 wherein the object into which fluid is to be dispensed is a tree having bark and wherein the second end of the nozzle is tapered for insertion into a hole formed in the bark of the tree to provide a jam-fit therein.

40. (Withdrawn) A method for injecting a fluid into a tree comprising the steps of:

- a) determining an injection depth of a fluid in a tree;
 - b) drilling a hole in the tree, the hole having a hole depth, the hole depth being no shallower than the injection depth;
 - c) providing a dispensing apparatus as in Claim 39, said apparatus including the nozzle;
 - d) inserting the nozzle in the hole;
 - e) mating the canister to the nozzle,
- to thereby allow fluid from the canister to flow through the nozzle into the tree.

41. (New) A dispensing apparatus for dispensing a fluid into a tree, the dispensing apparatus comprising:

- a) a canister for containing an injection fluid, the canister having an interior cavity with inside cylindrical walls and an output port communicating with the interior cavity;
- b) a partition within the interior cavity dividing such interior cavity into a first subchamber communicating with the output port and a second subchamber on the side of the partition opposite such output port, the partition being a movable

partition which is positioned within the interior cavity for sliding displacement therein and having a sealing fit against the inside walls of the interior cavity;

c) a valve/closure disposed at the output port for permitting the release of fluid contained within the first subchamber;

d) spring means for applying a force on the movable partition disposed within the second subchamber, the spring means being seated on the canister and being oriented to apply a force on the moveable partition, biasing the partition for displacement towards the valve/closure;

in combination with:

e) a nozzle having a bore extending there through, the nozzle being shaped at a first end for communication with the output port and being shaped at its other, second end in the shape for connection with a hole formed in a tree into which fluid is to be injected,

wherein, upon connection of the nozzle at the output port, a flow path is available from the first subchamber through the valve/closure to permit fluid, expressed from the first subchamber by displacement of the partition in response to the force applied by the spring means, to pass through the bore of the nozzle, thereby dispensing the fluid from the dispensing apparatus,
and wherein

i) the valve/closure comprises a self-sealing solid plug of penetratable elastomeric material;

ii) the nozzle comprises a needle having a needle bore and needle tip, the needle being positioned at a recessed location within the first end of the nozzle for

insertion through the plug for permitting a flow of fluid through the needle,

iii) the needle tip is positioned within a recess in the nozzle whereby the needle tip does not extend beyond the first end of the nozzle, and

iv) the second end of the nozzle is tapered for insertion into a hole formed in the outside surface of a tree to provide a jam-fit therein.